

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 30 SEP 1997		2. REPORT TYPE		3. DATES COVERED 00-00-1997 to 00-00-1997	
4. TITLE AND SUBTITLE Laser Doppler Anemometer Measurements of Surface Wind and Aerosols Over the Sea (DURIP Instrumentation)				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of California, Irvine, Department of Mechanical Engineering, Irvine, CA, 92697				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a REPORT unclassified	b ABSTRACT unclassified	c THIS PAGE unclassified			

LASER DOPPLER ANEMOMETER MEASUREMENTS OF SURFACE WIND AND AEROSOLS OVER THE SEA (DURIP INSTRUMENTATION)

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LONG-TERM GOALS

The long-term goals are to measure, understand and parameterize the basic physics of the wind, waves and associated temperature and humidity structure in the boundary layer over the ocean. This is done via direct measurements in the surface layer over the ocean from, for example, platforms such as R/P FLIP. The DURIP grant is for a laser Doppler anemometer (LDA) to obtain measurements near and in the surface wave environment where other instruments fail.

OBJECTIVES

The objective is to acquire and test a two-dimensional laser Doppler anemometer and associated instrumentation for measurements of the wind vector near and in the ocean surface wave field.

APPROACH

The DURIP funding is to acquire the appropriate equipment.

WORK COMPLETED

After a thorough search of LDA vendors, we selected a Yag two-dimensional modular fiber-optic system. A modern GPS-aided motion unit was also selected to measure the motion of a platform like R/P FLIP on which the LDA will eventually be used.

RESULTS

Since the DURIP is an instrumentation acquisition grant, there are no scientific results; the main instruments are on order, but have not been received yet.

IMPACT

The impact of the LDA measurements will be the improvement of the understanding of the physics of wind-wave generation.

TRANSITIONS

We have been in contact with Dr. Jurgen Richter of NOSC about near-surface aerosol and laser measurements.

RELATED PROJECTS

The DURIP grant application was a result of the research in the ONR ARI Marine Boundary Layers experiment.

REFERENCES

The Web page is <http://wave.eng.uci.edu>